FUTURE FISHERIES IMPROVEMENT PROGRAM
GRANT APPLICATION
(please fill in the highlighted areas)

I. APPLICANT INFORMATION

A. Applicant Name: Montana Fish, Wildlife & Parks (FWP)

B. Mailing Address: 415 South Front Street

C. City: Townsend State: MT Zip: 59644

Telephone: 406-495-3866

D. Contact Person: Lee Nelson, FWP, Cutthroat Trout Biologist, or
Matt Jaeger, FWP, Dillon Area Fisheries Management Biologist, 406-683-9310

Address if different from Applicant:

City: State: Zip:

Telephone:

E. Landowner and/or Lessee Name (if other than Applicant): Turner Enterprises, Inc. (MT State Lands lease)
Contact person: Carter Kruse, Aquatic Resource Coordinator

Mailing Address: 1123 Research Drive

City: Bozeman State: MT Zip: 59718

Telephone: 406-556-8500

II. PROJECT INFORMATION*

A. Project Name: Greenhorn Creek Westslope Cutthroat Trout Conservation Project: Fish Migration Barrier

River, stream, or lake: Greenhorn Creek, Ruby River drainage

Location: Township 8S Range 4W Section 26

County: Madison

B. Purpose of Project:

The purpose of the project is to protect a native westslope cutthroat trout (WCT) population in Greenhorn Creek (Ruby River drainage, near Alder, MT; Figure 1) from competition and hybridization with nonnative brook and rainbow trout by placing a barrier to their upstream movement. The proposed barrier, in conjunction with nonnative trout removal efforts, would significantly increase the likelihood of long-term persistence of the Greenhorn Creek WCT population.

FWP is obligated by agreement and statute to maintain viable populations of WCT throughout their range. Owing to habitat changes and the introduction of nonnative trout, genetically unaltered WCT are estimated to persist in less than 5% of their historic habitats in the Upper Missouri River basin.

The Greenhorn Creek WCT population, like most remaining in the Upper Missouri basin, is unlikely to persist without conservation efforts that reduce or eliminate the impacts (i.e., competition and hybridization) of nonnative trout. Brook trout are common throughout the Greenhorn Creek drainage, and in the lower reaches of the stream the presence of slightly hybridized WCT indicates occasional rainbow trout invasion from the Ruby River.

In an effort to maintain the viability of the Greenhorn Creek WCT population, since 2007 FWP, the U.S. Forest Service, the U.S. Bureau of Land Management and Turner Enterprises have removed brook trout in portions of the Greenhorn drainage with multiple-pass electrofishing (MEPA Decision Notice signed in October 2007). A continuation and expansion of these removal efforts and the placement of migratory fish barrier at the lower end of the project are necessary to complete the WCT conservation effort. A barrier would prevent re-invasion of nonnative trout once they are eliminated upstream of the structure, and protect about 12 miles of stream exclusively for native WCT. Very few WCT populations are currently protected in a drainage of this size in the Upper Missouri basin.

Potential impacts of nonnative trout removal and barrier placement were evaluated and approved through an FWP prepared Environmental Assessment (EA) in October of 2007. FWP anticipates the preparation of an additional EA to evaluate the use of piscicides in the Greenhorn drainage for more efficient removal of nonnative trout.

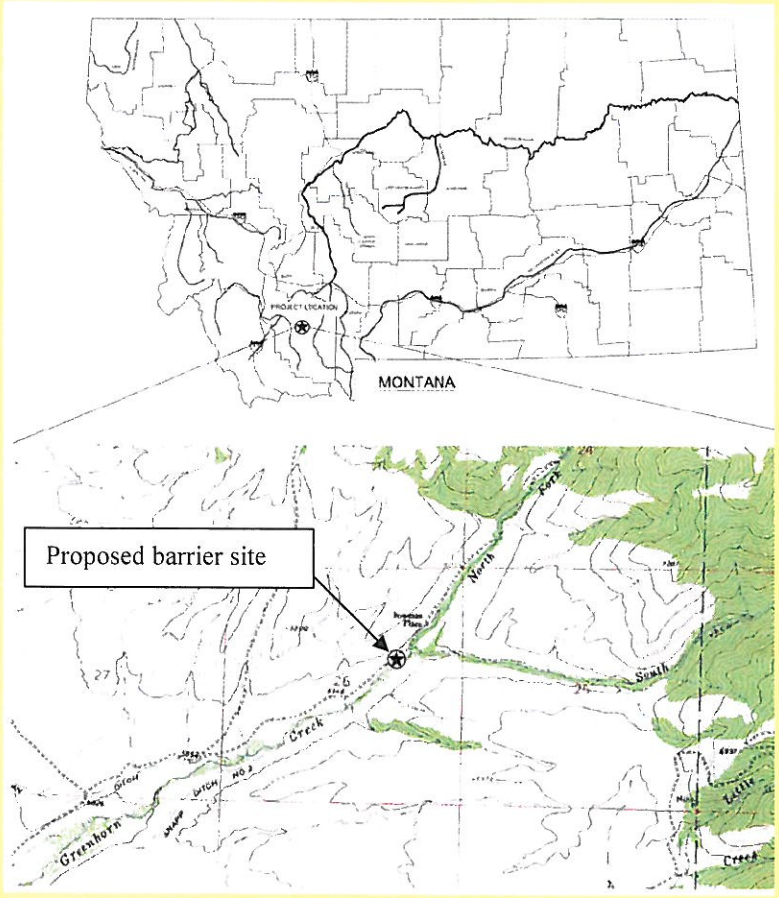

Figure 1. Location of the proposed fish migration barrier on Greenhorn Creek, Ruby River drainage (near Alder, MT).

Brief Project Description:

C.

In 2010, the cooperators in the Greenhorn Creek project contracted the design (EMC^2, George Austiguy, P.E.) of a fish passage barrier that would prevent upstream movement of nonnative trout into reaches of stream being secured for WCT conservation. The final barrier design includes a poured concrete vertical dam, wing-walls, and splash-pad (see photo of a similar structure below).

Photo 1. A completed barrier similar in design to the one proposed for Greenhorn Creek.

Due to a combination of jump height over the dam, and an inclined splash pad that prevents the formation of a "jump pool", the designed barrier is expected to prevent upstream movement of trout up to at least the 50 year discharge event. Owing to a wide floodplain, a structure that prevented upstream movement in greater discharges was not feasible. Earthen and rock berms would maintain the stream within the barrier wing-walls up to the 50 yr discharge event. Berms would be fortified (i.e., fabric, rock, and vegetation) to prevent significant erosion in the chance they are overtopped in severe discharge events. Details of the barrier design are provided in Attachment A.

D. Length of stream or size of lake that will be treated: About 12 miles of stream would be protected for westslope cutthroat trout conservation.

E. Project Budget:

Grant Request (Dollars): **$ 81,983**

Contribution by Applicant (Dollars): $ **5,000** In-kind $
(salaries of government employees are not considered as matching contributions)

Contribution from other Sources (Dollars): $ **87,000** In-kind $
(attach verification - See page 2 budget template)

MATCHING CONTRIBUTIONS

CONTRIBUTOR	IN-KIND SERVICE	IN-KIND CASH	TOTAL
Montana Fish, Wildlife & Parks (barrier design)	$ -	$ 5,000.00	$ 5,000.00
Turner Enterprises, Inc. (barrier design)	$ -	$ 5,000.00	$ 5,000.00
Beaverhead-Deerlodge National Forest (barrier design)	$ -	$ 2,000.00	$ 2,000.00
Turner Enterprises, Inc. (barrier construction)	$ -	$ 50,000.00	$ 50,000.00
Beaverhead-Deerlodge National Forest (barrier construction)	$ -	$ 10,000.00	$ 10,000.00
SW Montana Resource Advisory Committee (RAC)	$ -	$ 20,000.00	$ 20,000.00
Total:	$ -	$ 92,000.00	$ 92,000.00

Total Project Cost: **$ 173,983**

F. Attach itemized (line item) budget – see template

Please see Attachment B.

G. Attach specific project plans, detailed sketches, plan views, photographs, maps, evidence of landowner consent, evidence of public support, and/or other information necessary to evaluate the merits of the project. If project involves water leasing or water salvage complete supplemental questionnaire (fwp.mt.gov/habitat/futurefisheries/supplement2.doc).

Please see Attachment A and C.

H. Attach land management and maintenance plans that will ensure protection of the reclaimed area.

The barrier site will be reclaimed with vegetation after construction. The structure will be monitored semi-annually by personnel from FWP and Turner Enterprises, Inc. (project partner and lessee of the construction site parcel) to ensure that the barrier maintains its structural integrity. For the foreseeable future it is a management priority of the partners in this project to maintain a functioning barrier on Greenhorn Creek, and repairs and maintenance will be completed as necessary.

III. PROJECT BENEFITS*

What species of fish will benefit from this project?:

A. Native westslope cutthroat trout (WCT).

B. How will the project protect or enhance wild fish habitat?:

The proposed barrier will prevent additional invasions of nonnative trout into portions of the Greenhorn Creek drainage. The barrier is a key element of the Greenhorn Creek WCT conservation program that also includes removal of nonnative trout. Without both components of this conservation effort, the barrier and nonnative trout removal, it is possible that the Greenhorn Creek WCT population could disappear in the foreseeable future.

C. Will the project improve fish populations and/or fishing? To what extent?:

The WCT population above the proposed barrier site is expected to increase in abundance and distribution as nonnative trout are suppressed and eradicated in about 12 miles of stream. It is anticipated that WCT would replace, or nearly so, the number of nonnative trout removed from the system – resulting in a WCT population increasing from several hundred fish to an estimated 4,000 – 6,000 fish.

D. Will the project increase public fishing opportunity for wild fish and, if so, how?:

No changes in the abundance of game fish are expected with the installation of the barrier. The Greenhorn WCT conservation project does include suppression / eradication of nonnative trout, but overtime it is anticipated these species would be replaced by a similar number of WCT. Protection and expansion of the Greenhorn Creek WCT population would ensure the public has the continued opportunity to fish for WCT – a rare native species in the upper Missouri River basin.

E. If the project requires maintenance, what is your time commitment to this project?:

For the foreseeable future it is a management priority of the partners in this project to maintain a functioning fish barrier on Greenhorn Creek. The barrier would be constructed on a Montana Department of Natural Resources and Conservation land parcel within the bounds of the Snowcrest Ranch (Turner Enterprises Inc.). The Snowcrest Ranch leases the state land parcel, and has agreed to complete semi-annual inspections to monitor barrier performance and perform minor maintenance (remove debris, etc.). Though the barrier design (i.e., size, concrete construction, and berm fortification) should minimize the need for major maintenance, FWP would work with its partners to find the resources necessary for major repairs.

F. What was the cause of habitat degradation in the area of this project and how will the project correct the cause?:

Nonnative trout (i.e., brook and rainbow) were introduced to Montana starting in the late 1800's, but it is unknown when they invaded or were stocked into Greenhorn Creek. The stream was historically occupied by only one native trout species – WCT. By preventing additional invasion of nonnative trout into the Greenhorn Creek drainage the proposed barrier is a key component of the WCT conservation project which includes eradication of nonnative trout upstream of the structure once it is completed.

G. What public benefits will be realized from this project?:

Westslope cutthroat trout are a rare native species east of the Continental Divide and are recognized as Montana's state fish. Protecting the Greenhorn WCT population with a barrier will help assure the persistence of one of the few genetically pure WCT populations remaining in the Ruby River drainage. In addition to protecting this population, the project would allow for continued fishing opportunities for native WCT in Greenhorn Creek, and would reduce threats associated with the potential listing of the WCT under the Federal Endangered Species Act.

H. Will the project interfere with water or property rights of adjacent landowners? (explain):

No

I. Will the project result in the development of commercial recreational use on the site?: (explain):

No

J. Is this project associated with the reclamation of past mining activity?:

No

Each approved project sponsor must enter into a written agreement with the Department specifying terms and duration of the project.

IV. AUTHORIZING STATEMENT

I (we) hereby declare that the information and all statements to this application are true, complete, and accurate to the best of my (our) knowledge and that the project or activity complies with rules of the Future Fisheries Improvement Program.

Applicant Signature: [signature], FWP Date: 11/30/11

Sponsor (if applicable):